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09/936,790	09/17/2001	John William Alden Millar	GRFL-5-PCT	1532

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EXAMINER	
LE, TOAN M	
ART UNIT	**PAPER NUMBER**
2863	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 09/936,790	Applicant(s) MILLAR ET AL.	
	Examiner Toan M Le	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 25-48 are rejected under 35 U.S.C. 102(b) as being anticipated by "Electroseismic Technique for Measuring the Properties of Rocks Surrounding a Borehole", Millar et al (Referred hereafter Millar et al.).

Referring to claim 25, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6).

As to claim 26, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25)

so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the seismic signal is generated by the generation of a seismic or sonic shock downhole which propagates a seismic signal into the surrounding rock (page 8, lines 1-6).

Referring to claim 27, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the direction of the seismic signal is varied in three dimensions azimuthally with respect to the source of the seismic shock in the borehole (Abstract: lines 10-13; page 8, lines 1-6).

As to claim 28, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the direction of the seismic shock is rotated radially about a circle with the source of the seismic shock at the centre of the circle (page 3, lines 26-29; page 1-8).

Referring to claim 29, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the direction of the seismic shock is rotated radially about a circle with the source of the seismic shock at the centre of the circle (page 3, lines 26-29; page 1-8).

As to claim 30, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the direction of the seismic signal is varied mechanically by physically turning the source (page 10, lines 20-23).

Referring to claim 31, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is

adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the seismic signal is substantially uni-directional and the source is rotated so the direction of the seismic signal is rotated and is also moved so that the direction of the seismic signal moves up and down (page 4, lines 6-8).

As to claim 32, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the seismic signal is propagated omni-directionally and a shield with an aperture is positioned around the source so that the seismic signal propagates through the aperture and the direction of the seismic signal is changed by moving the location of the aperture (page 3, lines 26-29; page 4, lines 1-8).

Referring to claim 33, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in

which the direction of the seismic signal is changed by wave interference or wave interaction of two or more sources acting together to produced a seismic signal which is focused in a particular direction or location and by varying the frequency, amplitude and/or phases of the sources of the seismic signal the spatial distribution, direction and location of the outgoing seismic signal is changed (page 5, lines 15-19; page 9, lines 10-13).

Referring to claim 34, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the direction of the seismic signal is changed by wave interference or wave interaction of two or more sources acting together to produced a seismic signal which is focused in a particular direction or location and by varying the frequency, amplitude and/or phases of the sources of the seismic shock the spatial distribution, direction and location of the outgoing seismic signal is changed (page 5, lines 15-19; page 9, lines 10-13).

As to claim 35, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25)

so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the source of the seismic signal is positioned substantially centrally within the borehole and is not in contact with the borehole wall (page 3, lines 3-4).

Referring to claim 36, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which there are two or more separate sources of the seismic shock spaced apart from each other and there are means to vary the amplitude, frequency and/or phase independently and the source of the seismic signal propagates a seismic signal in substantially all directions so that the direction of the combined signal produced can be varied in three dimensions (page 5, lines 15-19; page 11, lines 14-16).

As to claim 37, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the

seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which each seismic source continuously emits sound simultaneously on at least two finite frequencies with the resultant oscillation being the sum of the various sinusoidal pressure oscillations and by variation and combination of these signals the direction of the combined signal is varied (page 5, lines 15-19; page 9, lines 10-13).

Referring to claim 38, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 3, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the electrokinetic signals generated are amplified and demodulated with respect to the source frequencies and the amplitude and phase relative to the source sampled at a frequency of 1-100 Hz per channel and converted from analogue to digital form, of 12 or 16 bit accuracy (page 5, lines 20-23).

As to claim 39, Millar et al. disclose a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation (Abstract: lines 1-6) and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means (Abstract: lines 7-9) and in which the spatial distribution of the outgoing seismic signal is adjusted (page 5, lines 17-25) so that the electrokinetic signals are generated from different zones around the source of the

seismic or sonic signal (page 3, lines 5-8; and page 8, lines 1-6) in which the seismic signal is generated whilst the source of the seismic signal is lowered or raised up from the borehole to provide a continuous or semi-continuous measurement of rock along the borehole (page 4, lines 6-8; page 9, lines 16-18).

Referring to claim 40, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6).

As to claim 41, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6) in which the seismic source means for generating the seismic signals generates a series of pressure pulses or a continuous pressure oscillation, at one or more finite frequencies (page 10, lines 7-11).

Referring to claim 42, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to

be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6) in which the seismic source means for generating the seismic signals is a magnetostrictive or piezoelectric transducer whose signal is controllable electrically (page 10, lines 24-26).

As to claim 43, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6) in which the seismic source means for generating a seismic signal comprises a cylindrical chamber having holes in its side, which, when downhole, will be full of drilling fluid with the sides of the chamber being close to the sides of the borehole, there being a means to transmit a shock or applied force to the fluid in the chamber so as to cause the shock to be transmitted through the fluid in the chamber through the holes into the surrounding rock (page 10, lines 12-19).

Referring to claim 44, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source

means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6) in which the electrical receiver consists of one or two pairs of electrodes forming a short dipole antenna with electrically isolated ends or two with electrically isolated lines, the ends of which being connected to an amplifier which amplifies the signals whilst keeping them electrically isolated (page 11, lines 5-13).

As to claim 45, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6) in which there are means to physically turn the seismic source means to vary the direction of the seismic signal (page 3, lines 17-25; page 10, lines 20-23).

Referring to claim 46, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a

means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6) in which there is a shield with an aperture positioned around the seismic source which source is adapted to propagate a seismic signal omni-directionally so that the seismic signal generated propagates through the aperture and there are means to move the location of the aperture so the direction of the seismic signal is varied (page 3, lines 26-29; page 4, lines 1-8; page 10, lines 12-19).

As to claim 47, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6) in which there are two or more sources of seismic signals acting together and means to vary the direction of the seismic signal by wave interference or wave interaction of the two or more sources to produce a seismic signal which is focused in a particular direction or location (page 5, lines 15-19; page 9, lines 10-13; page 11, lines 14-16) and means to vary the frequency, amplitude and/or phases of the sources of the seismic shock to change the spatial distribution, direction and location of the outgoing seismic signal (page 3, lines 17-25; page 9, lines 10-13).

Referring to claim 48, Millar et al. disclose an apparatus for measuring the properties of rocks surrounding a borehole (page 10, lines 1-2), which apparatus comprises a casing adapted to be lowered down a bore hole (page 10, lines 2-3), in which casing there is a seismic source

means for generating seismic signals (page 10, line 3) and a means for varying the direction of the seismic signal and having associated therewith (page 3, lines 17-25; page 10, lines 3-4), a means adapted to detect electrical signals generated in the rock surrounding the bore hole by the effect of a seismic signal generated by the seismic source means (page 10, lines 5-6) in which there are two or more separate sources of the seismic shock spaced apart from each other and there are means to vary the amplitude, frequency and/or phase independently of the seismic shock, the source of the seismic shock being able to propagate a seismic signal in substantially all directions so that the direction of the combined signal produced can be varied in three dimensions (page 9, lines 10-13; page 11, lines 14-16).

Remarks:

Response to Arguments

Applicant's arguments filed 9/15/03 have been fully considered but they are not persuasive.

Referring to claims 25-48, Applicant argues that "More specifically, the present invention adds the previously unknown and unique feature of **varying the direction of the seismic signal**. Regarding claim 25, for example, there is no teaching of 'adjusting' the 'spatial distribution of the outgoing seismic signal', whatsoever."

WO 97/14980 discloses "The means for generating the seismic signals preferably generates a series of pressure pulses or, more preferably, a continuous pressure oscillation, at one or more finite frequencies. It may consist of mechanical vibrational device, an electromagnetic device, a sparker source, an explosive source, an air gun operated hydraulically or electronically or any other such conventional sonic source designed for use on a downhole tool but preferably it

should be a magnetostrictive or piezoelectric transducer whose signal is **controllable** electrically. The term 'seismic pulse' can include a pulse which can be referred to as a sonic or acoustic pulse." (on page 3, lines 17-25).

Controllable is defined as to adjust to a requirement; or regulate by American Heritage, Fourth Edition 2000.

Thus, WO 97/14980 does teach varying the direction of the seismic signal and adjusting the spatial distribution of the outgoing seismic signal.

Conclusion

THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703) 305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

Toan Le

November 21, 2003

arlow
aminer
Technology Center 2800